A SIMPLE DRESSING

FOR

FRACTURE OF THE CLAVICLE.

By referring to any of our standard authors on surgery the reader will soon be convinced that to retain in position a fractured clavicle is a most difficult thing to accomplish; and that for this purpose a greater variety of apparatus has been invented, and plans of dressings and bandages suggested, than for the treatment of any other fracture in the body, unless it may possibly be that of the lower jaw.

Some years since a physician in the western part of this state (whose name I have unfortunately forgotten) suggested to me the propriety of dressing this fracture with an axillary pad and strips of adhesive plaster only. One to go around the middle of the arm and pulling it backward, should pass around the body, and thus retain it; while another strip, starting from the shoulder of the opposite side, passed across the back, and pressing the elbow well forward, acting on the first bandage as a fulcrum, necessarily forced the shoulder upward, outward, and backward, and by flexing the arm and passing over it to the place of beginning on the shoulder,

thus acting like a sling in sustaining the weight of the arm, and there being secured, would necessarily retain the fractured parts in apposition.

I have treated every fractured clavicle that I have seen since that time upon this plan, making more or less modification in the appliance as I gained additional experience, until I have finally reduced the treatment to *two strips of adhesive plaster, without any axillary pad;* and as such I now give it to the profession as the simplest and most efficacious plan yet devised.

In the Bellevue and Charity Hospital Reports for 1870 I published a short paper on this subject; but since that time I have so modified the dressing that I feel that, in justice to myself as well as to the plan I suggest, I should give the improvements which I think I have made.

By reference to Professor Hamilton's exhaustive work on "Fractures and Dislocations," we find that he has devoted eight pages of short quotations from fifty-seven different authors, running from the days of Hippocrates to the present time, in order to confirm the accuracy of his own observations; viz., that "fracture of the clavicle is almost always followed by deformity, whatever may be the perfection of the apparatus or the care of the surgeon."*

"Hippocrates has observed that *some degree of deformity* almost always accompanies the reunion of a fractured clavicle. All writers since his time have made the same remark. Experience has confirmed the truth of it."†

Velpeau says: "In oblique fracture of the middle third of the clavicle, with all the bandages imaginable, we can not prevent deformity." ‡

Dr. Wales says: "A fracture outside of the coraco-clavicular ligament will be attended with a posterior displacement of

* Vidal (de Cassis), vol. ii, page 105.

† Treatise on Fractures and Luxations. By J. P. Dessault. Philadelphia, 1805. Page 9.

‡ Boston Medical and Surgical Journal, vol. xxxv, page 212.

the external fragment, which will unite with anterior angular deformity in spite of best treatment."*

"As a general rule, it may be stated that though the reduction is so easy, yet in those cases of complete oblique fracture of the adult it will be impossible to retain it by any apparatus whatever, and union will therefore occur with some degree of overlapping or deformity."†

M. Mayor, of Lausanne, thinks that up to the present time *no successful* treatment has been devised; and recommends them to be treated *without* any apparatus, by lying in the horizontal posture on the back, which he says will give the most perfect union.‡

Many of the most eminent surgeons of the present day, being dissatisfied with all the different apparatus and bandages devised, have adopted the views of M. Mayor, and treat all their cases of fractured clavicle by what is called the "postural treatment;" viz., lying on the back, with a pillow between the shoulders, until union has occurred.

This treatment, besides being exceedingly irksome to the patient—for it involves the necessity of a *fixed position* in the horizontal posture for a number of days—will frequently result in a non-union of the fragments if the fracture be in the outer third of the bone, the frequent contractions of the deltoid and trapezius muscles preventing the fractured extremities from remaining in *quiet* apposition.

I have myself seen two cases of this kind. In one of them the horizontal posture had been assiduously maintained for six weeks, and yet no union had occurred. The fracture in this case was very near the acromion. By severe friction of the extremities, and dressing the parts in the manner I shall soon describe, and putting the patient to work in the

* Wales's Surgical Operations and Appliances. Philadelphia, 1867. Page 398.

† Same, page 399.

‡ Nouveau Systeme de Deligation Chirugicale, par Mathias Mayor, de Lausanne, page 384, etc. Paris edition, 1838.

open air and thus improving his general health, I succeeded in obtaining perfect union without deformity.

When a patient is really sick and feeble from any cause, it is very irksome to maintain the horizontal posture for many days, even when permitted to change position and move from side to side occasionally; but to compel one in robust health to keep a *fixed position* on the back without movement for two or three weeks is a degree of torture which few persons will submit to. Besides, if we can keep the parts accurately in apposition, and at the same time give the patient the privilege of exercise and perhaps earning his living with his other hand, should we not be held responsible to him for his unnecessary confinement, as well as unnecessary loss of time?

All authors agree as to the deformity which occurs in fracture of the clavicle—viz., that the shoulder falls *downward, forward,* and *inward,* and that the outer end of the sternal or inner fragment always rides *over* the inner end of the outer or acromial portion of the clavicle. They also all agree as to the indications to be fulfilled in the treatment—viz., to sustain the shoulder *upward, outward,* and *backward,* and to *press* the elevated portion of the clavicle into its proper position.

My method of keeping the inner portion of the clavicle from riding over the outer portion is *by putting the clavicular portion of the pectoralis major muscle on the stretch,* and compelling it to *pull* the clavicle in place, and thus overcome the tendency of the clavicular portion of the sterno-cleido-mastoid to elevate it, which it will always do unless this precaution is taken.

M. Guillon (*L'Abeille Medicale,* Oct., 1847) came nearer the correct method of treatment than any of his predecessors when he recommended placing the arm *behind* the body instead of bringing it over the chest in front; for by this means the *clavicular portion* of the pectoralis major is made

very tense, and thus prevents the elevation of the inner portion of the clavicle by the contraction of the sterno-cleido-mastoid. As far as I can ascertain, this is the first attempt to treat fracture of the clavicle by taking advantage of the muscles attached to the bone, and make *them* hold the bone in apposition by keeping them in equal tension on either side of it; but while this position of the arm behind the body drags down the inner fragment of the clavicle to the proper level, it fails to extend the clavicle, and thus permits the pieces to overlap, and also fails to keep the shoulder upward, outward, and backward, which is absolutely necessary in order to preserve the fractured portions of the clavicle in accurate apposition.

I therefore, after drawing the arm backward and retaining it there by a strip of adhesive plaster, pass another piece of plaster from the *well shoulder* across the back, and by pressing the elbow well *forward* and inward the first plaster around the middle of the arm is made to act as a *fulcrum*, and the shoulder is necessarily carried *upward*, *outward*, and *backward;* and the plaster, being carried over the elbow and fore-arm (which is flexed across the chest) to the opposite shoulder, the place of starting, and then secured by pins or stitches, permanently retains the parts in position.

I formerly commenced the first plaster on the inner side of the biceps; but I found that that muscle would roll around and the plaster would lose its hold, requiring to be renewed occasionally; and if it completely encircled the arm for the purpose of a stronger attachment, it would arrest the circulation and thus prove dangerous. I have therefore adopted the following plan: strong and good adhesive plaster (Maw's moleskin is the best) is cut into two strips, three to four inches wide (narrower for children); one piece long enough to surround the arm and go completely around the body, the other to reach from the sound shoulder around the elbow of the fractured side and back to the place of starting. The

first piece is passed around the arm just below the axillary margin, and pinned or stitched in the form of a loop sufficiently large to prevent strangulation, leaving a portion on the back of the arm uncased by the plaster. The arm is then drawn downward and *backward* until the clavicular portion of the pectoralis major muscle is put sufficiently on the stretch to overcome the sterno-cleido-mastoid, and thus pull the inner portion of the clavicle down to its level. The plaster is then carried smoothly and completely around the body, and pinned to itself on the back to prevent slipping, as seen in figure 1. This first strip of plaster fulfills a double purpose; first, by putting the clavicular portion of the pectoralis major muscle on the stretch, it prevents the clavicle from riding upward; and secondly, acting as a *fulcrum* at the center of the arm, when the elbow is pressed downward, forward, and inward, it necessarily forces the other extremity of the humerus (and with it the shoulder) *upward*, *outward*, and *backward;* and it is kept in this position by the second strip of plaster, which is applied as follows: commencing on the front of the shoulder of the sound side, drawing it smoothly and diagonally across the back to the elbow of the fractured side, where a slit is made in its middle to receive the projecting olecranon. Before applying this plaster to the elbow an assistant should press the *elbow well forward and inward* (figure 2), and retain it there, while the plaster is continued

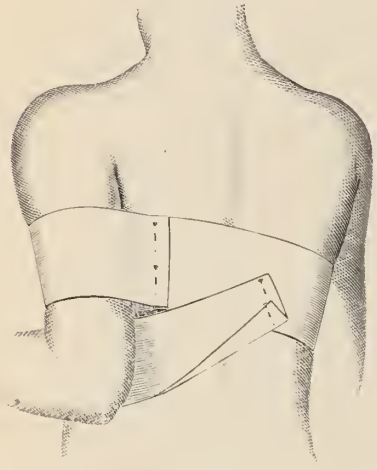

FIG. 1. Sayre's first bandage for Fractured Clavicle. Back view.

over the elbow and fore-arm (pressing the latter close to the chest, and securing the hand near the opposite nipple); crossing the shoulder at the place of beginning, it is there secured by two or three pins, as seen in figures 2 and 3.

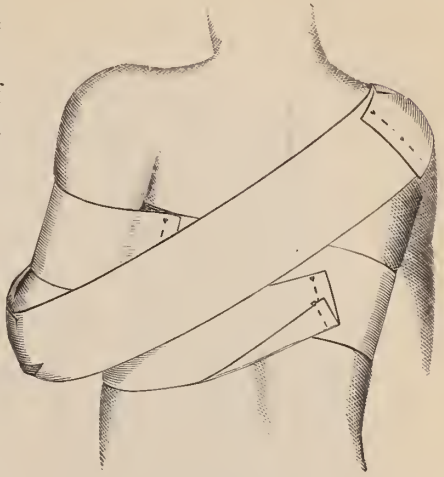

FIG. 2. Sayre's second bandage for Fractured Clavicle. Back view.

When this has been done the deformity will have entirely disappeared, the fractured bones will be accurately adjusted, and as long as the strips of plaster maintain their position no amount of force can displace them. I have repeatedly tested this fact before my class by seizing the patient by the arm of the fractured side and whirling him like a top on his feet, without ever causing the slightest displacement or giving the slightest pain. By this plan of treatment the patient is only detained from his daily avocation a sufficient length of time to properly adjust the strips of adhesive plaster.

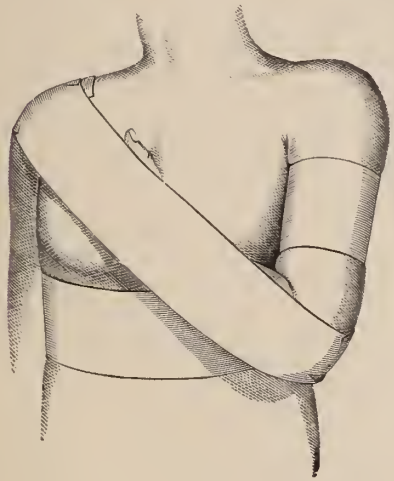

FIG. 3. Sayre's Dressing for Fractured Clavicle. Front view.

In one instance a prominent lawyer of this city slipped upon the ice and fractured his clavicle on his way down town.

He was brought to my office. I dressed him in the manner above described at nine A. M., and before eleven he was pleading his case in the open court.

A blacksmith was brought to my office with a fracture of the left clavicle. I dressed it, and in less than an hour he was again working at his forge with his other arm, and continued his labor without any interruption. In both cases the union was perfect and without *any* deformity.

I could multiply these cases by many similar ones, and I therefore feel quite confident that if any surgeon will follow the plan suggested he will have equally good results.

New York, May.